What is claimed is:

1. A computer-readable medium having computer-executable

5   instructions for performing steps by a client for establishing

an authenticated connection with a server, comprising:

preparing a request packet containing authentication

request data for requesting establishment of an authenticated

connection, the authentication request data formatted for

10 prompting a server recognizing said data to respond with a

first pre-defined message and for prompting a server not

recognizing said data to respond with a second pre-defined

message;

sending the communication packet to the server;

15   receiving a response packet containing a response message

from the server responding to the communication packet;

if the response message is the first pre-defined message,

transmitting credential data of the client to the server for

authentication;

20   if the response message is the second pre-defined

message, transmitting subsequent communication to the server

over a non-authenticated connection.

2. A computer-readable medium as in claim 1, having

25 further computer-executable instructions for performing the

step of: if the response message is a third pre-defined

message indicating that the client has an existing

authenticated connection with the server, transmitting

subsequent communication to the server over the existing

authenticated connection.

5   3. A computer-readable medium as in claim 1, having

further computer-executable instructions for performing the

steps of:

identifying from the response packet an authentication

protocol supported by the server;

10   communicating with server, including said transmitting

credential data, to perform authentication of the client under

the authentication protocol.

4. A computer-readable medium as in claim 1, wherein the

15 authentication request data are included in a header portion

of the request packet.

5. A computer-readable medium as in claim 4, wherein the

request packet is constructed as a Hypertext Transport

20 Protocol (HTTP) request, and the authentication request data

identify a method under the Hypertext Transport Protocol.

6. A computer-readable medium as in claim 1, wherein the

request and response packets are constructed under a first

25 communication protocol, and each of the request and response

packets containing a data portion containing communication

data formatted according to a second communication protocol,

and wherein the authentication request data are in the data portion of the request packet.

7. A computer-readable medium as in claim 6, wherein the first communication protocol is the Hypertext Transport Protocol (HTTP).

8. A computer-readable medium as in claim 6, wherein the second communication protocol is the Internet Printing Protocol (IPP).

9. A computer-readable medium having stored thereon a data structure having:

a first data region containing data representing a header portion of a communication packet, including authentication request data representing a request by a client to form an authenticated connection with a server, the authentication request data formatted to prompt a server not recognizing the authentication request data to respond with a pre-defined error message; and

a second data region containing data representing a data portion of the communication packet.

10. A computer-readable medium as in claim 9, wherein the communication packet is formatted according to the Hypertext Transport Protocol (HTTP).

11. A computer-readable medium as in claim 10, wherein the authentication data represent a method under the Hypertext Transport Protocol.

5   12. A computer-readable medium having stored thereon a data structure having:

a first data region containing data representing a header portion of a communication packet, and

a second data region containing data representing a data

10   portion of the communication packet, including authentication request data representing a request by a client to form an authenticated connection with a server, the authentication request data formatted to prompt a server not recognizing said data to respond with a pre-defined error message.

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13. A computer-readable medium as in claim 12, wherein the communication packet is formatted according to the Hypertext transport Protocol (HTTP).

20   14. A computer-readable medium as in claim 13, wherein the data in the second data region represent communication data formatted according to the Internet Printing Protocol (IPP), and the authentication data represent an operation under the Internet Printing Protocol.

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15. A method of communication for a client to force a server supporting both authenticated and non-authenticated

connections to establish an authenticated connection,

comprising the steps of:

sending, by the client, a request packet to the server,

the request packet including authentication request data

5   indicating a request for forming an authenticated connection

with the server,

checking, by the server in response to receipt of the

request packet, whether an authenticated connection with the

client exists;

10   if an authenticated connection with the client does not

exist, returning by the server to the client. a response packet

including a response message indicating recognition of the

authentication request data;

in response to the response message in the response

15   packet, sending by the client credential data to the server

for authentication.

16. A method as in claim 15, wherein the response packet

includes an identification of an authentication protocol

20   supported by the server, and the step of sending credential

data includes communicating with the server for client

authentication according to the authentication protocol.

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